Safety Data Sheet

According to Annex II to REACH - Regulation 2015/830

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Code: **DRAP280a**
Product name **ARMOLIME IR**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Hydrulic binder for consolidation injections of ancient masonry**

1.3. Details of the supplier of the safety data sheet

Name **DRACO ITALIANA S.p.A.**
Full address **Via Monte Grappa, 11 D-E**
District and Country **20067 Tribiano (MI)**
Italia
Tel. +39 02.90632917
Fax +39 02.90631976

e-mail address of the competent person responsible for the Safety Data Sheet **info@draco-edilizia.it**

1.4. Emergency telephone number

For urgent inquiries refer to **Centro Antiveleni di Bergamo 800883300 (Azienda Ospedaliera Papa Giovanni XXII)**
Centro Antiveleni di Firenze 0557947819 (Az. Osp. "Careggi" U.O. Tossicologia Medica)
Centro Antiveleni di Foggia 80018345 (Az. Osp. Univ. Foggia)
Centro Antiveleni di Milano 0266101029 (Osp. Niguarda Ca' Granda)
Centro Antiveleni di Napoli 0817472870 (Az. Osp. "A. Cardarelli")
Centro Antiveleni di Pavia 038224444 (CAV Centro Nazionale di Informazione Tossicologica)
Centro Antiveleni di Roma 063054343 (CAV Policlinico "A. Gemelli")
Centro Antiveleni di Roma 0649978000 (CAV Policlinico "Umberto I")
Centro Antiveleni di Roma 06 68593726 (CAV "Osp. Pediatrico Bambino Gesù" Dip. Emergenza e Accettazione DEA)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Skin corrosion, category 1	H314	Causes severe skin burns and eye damage.
Serious eye damage, category 1	H318	Causes serious eye damage.
Specific target organ toxicity - single exposure, category 3	H335	May cause respiratory irritation.
Skin sensitization, category 1B	H317	May cause an allergic skin reaction.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



SECTION 2. Hazards identification ... / >>

Signal words: Danger

Hazard statements:

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.

Precautionary statements:

P260	Do not breathe dust / fume / gas / mist / vapours / spray.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P280	Wear protective gloves/ protective clothing / eye protection / face protection.
P310	Immediately call a POISON CENTER / doctor / . . .
P264	Wash . . . thoroughly after handling.

Contains: Portland cement clinker
Idrossido di calcio

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification	x = Conc. %	Classification 1272/2008 (CLP)
Portland cement clinker		
CAS *65997-15-1*	20 ≤ x < 30	**Eye Dam. 1 H318, Skin Irrit. 2 H315, STOT SE 3 H335, Skin Sens. 1B H317**
EC *266-043-4*		
INDEX		
Reg. no. *Esente all'art. 2.7 (b) e Allegato V.10 REACH*		
Idrossido di calcio		
CAS *1305-62-0*	3 ≤ x < 9	**Eye Dam. 1 H318, Skin Irrit. 2 H315, STOT SE 3 H335**
EC *215-137-3*		
INDEX		
Reg. no. *01-2119475151-45-0041*		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

Portland cement clinker
General notes
Personal protective equipment is not necessary for rescuers, who must avoid the inhalation of cement dust and contact with damp cement or with preparations containing it (concrete, mortar, plaster, etc.). If this is not possible, they must adopt the personal protective equipment described in Section 8.

In case of eye contact
Do not rub your eyes to avoid possible corneal damage caused by rubbing.
If present, remove contact lenses. Incline the head in the direction of the affected eye, open the eyelids well and rinse with plenty of water for at

SECTION 4. First aid measures ... / >>

least 20 minutes to remove all residues. If possible, use isotonic water (0.9% NaCl). If necessary, contact an occupational health specialist or ophthalmologist.
In case of skin contact
For dry cement, remove and rinse thoroughly with water. For wet / damp concrete, wash the skin with plenty of water and mild pH soap or a suitable mild detergent. Remove contaminated clothing, shoes and glasses and clean them completely before re-using them. Consult a doctor in all cases of irritation or burns.

In case of inhalation
Take the person outdoors. Dust in the throat and nostrils should clean itself spontaneously. Contact a doctor if irritation persists, or if it occurs later or if you have discomfort, cough or other symptoms persist.

If swallowed
Do not induce vomiting. If the person is conscious, wash your mouth with water and give plenty of water to drink. Consult a doctor immediately or contact a Poison Control Center.

Idrossido di calcio
Eyes: rinse eyes immediately with plenty of water and consult a doctor.
Inhalation: go outdoors and seek medical attention.
Ingestion: clean mouth with water and drink plenty of water. It does not cause vomiting. Request medical assistance.
Skin: Sweep contaminated body surfaces carefully and gently to remove any traces of product. Wash the affected area immediately with plenty of water. Remove contaminated clothing. If necessary, consult a doctor.
General advice: no known delayed effects. Consult a doctor for all exposures, except for minor cases.

4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

Portland cement clinker
Eyes: Eye contact with cement dust (dry or wet) can cause serious and potentially irreversible injury.

Skin: Cement and its preparations can have an irritating effect on damp skin (due to sweating or moisture) after prolonged contact or can cause contact dermatitis, after repeated contact.

Inhalation: repeated inhalation of cement dust or mixtures containing cement over a long period of time increases the risk of developing lung diseases.

Ingestion: in case of accidental ingestion, the cement can cause ulceration of the digestive system.

Environment: under normal conditions of use, cement is not dangerous for the environment.

4.3. Indication of any immediate medical attention and special treatment needed

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

Portland cement clinker
Cement is not flammable.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

Portland cement clinker
Cement is not combustible or explosive, it does not facilitate or fuel the combustion of other materials.

5.3. Advice for firefighters

GENERAL INFORMATION

SECTION 5. Firefighting measures ... / >>

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

Portland cement clinker
Cement does not present risks related to fire.
No special protective equipment is needed for firefighters.

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

Portland cement clinker
No specific emergency procedures are required.
In any case it is necessary to protect the eyes, skin and respiratory tract with personal protective equipment in situations with high levels of dustiness.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

Idrossido di calcio
Contain the spill. Keep the material dry if possible. Cover the affected area, if possible, to avoid unnecessary dust hazards. Avoid uncontrolled spills in waterways and sewers (increase in pH). Any large spills in waterways must be reported to the Environment Agency or other regulatory body.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

Portland cement clinker
Dry cement
Use dry cleaning methods such as vacuum cleaners or vacuum extractors (portable industrial units, equipped with high efficiency particulate filters or equivalent techniques), which do not disperse dust in the environment. Never use compressed air.
Ensure that workers wear appropriate personal protective equipment (see section 8) in order to avoid inhalation of dust and contact with skin and eyes and prevent the spreading of cement dust. Store spilled material in containers (eg silos, hoppers etc.) for future use.

Wet cement
Remove the wet cement and place it in a container. Allow the material to dry and solidify before disposing of it as described in Section 13

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

Portland cement clinker
Fire prevention measures
No precaution should be taken as the cement is neither combustible nor flammable.
Measures to prevent the generation of aerosols and dust

SECTION 7. Handling and storage ... / >>

Do not sweep or use compressed air. Use dry cleaning methods (such as vacuum cleaners and vacuum extractors), which do not cause air leakage.Environmental protection measures
During material handling, avoid dispersion in the environment.

In workplaces where the cement is being handled, stored and bagged, one must not drink, eat, or smoke.
In dusty environments, wear dust masks and protective glasses.
Use protective gloves to avoid skin contact.

Idrossido di calcio
Avoid contact with skin and eyes. Wear protective devices (see point 8 of this safety data sheet). Do not wear contact lenses when working with this product. Keep dust levels to a minimum. Minimize dust generation. Cover the sources of dust with dust, remove dust from the handling point. The handling systems should preferably be closed. When handling loads, follow the normal precautions provided by Council Directive 90/269 / EEC to reduce the risks that these operations pose for workers. Avoid inhalation, ingestion or contact with skin and eyes. General occupational hygiene measures are required for
ensure safe handling of the substance. This means observing the principles of good personal hygiene and cleanliness (e.g. cleaning periodic with suitable devices); do not drink, eat and smoke during use. Take a shower and change at the end of each shift. Do not wear contaminated clothing at home.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

Portland cement clinker
White cement must be stored in waterproof, dry conditions (eg with minimal internal condensation), clean and protected from contamination. Risk of burial: the cement can thicken or stick to the walls of the confined space in which it is stored. Cement can collapse, collapse or fall unexpectedly.
To prevent burial or suffocation, do not enter confined spaces, such as silos, containers, bulk transport trucks, or other storage containers or containers that store or contain cement without adopting appropriate safety measures.
Do not use aluminum containers due to incompatibility of materials.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
EU	OEL EU	Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2020

Portland cement clinker

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV-ACGIH		1				RESP

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation						1 mg/m3		1 mg/m3

SECTION 8. Exposure controls/personal protection ... / >>

Idrossido di calcio

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
VLEP	FRA	5				
WEL	GBR	5				
OEL	EU	1		4		
TLV-ACGIH		5				

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,49	mg/l
Normal value in marine water	0,32	mg/l
Normal value of STP microorganisms	3	mg/l
Normal value for the terrestrial compartment	1080	mg/kg

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation	4 mg/m3	1	1 mg(m3	1	4 mg/m3	1	1 mg/m3	1

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

Portland cement clinker
The regulation (EC) n. 1907/2006 concerning the registration, evaluation, authorization and restriction of chemical substances (REACH), in Annex XVII, point 47, as amended by Regulation n. 552/2009, requires the prohibition to market and use cement and its preparations if they contain, once mixed with water, more than 0.0002% (2 ppm) of water-soluble chromium VI on the total dry weight of the cement itself. Considering that the white cement, once mixed with water, does not contain more than 0.0002% (2 ppm) of water-soluble Cr (VI) on the total dry weight, the same mixture can be marketed without the addition of reducing agents.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.
Provide an emergency shower with face and eye wash station.
HAND PROTECTION
Protect hands with category III work gloves (see standard EN 374).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.
SKIN PROTECTION
Wear category III professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
EYE PROTECTION
Wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).
RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.
ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Portland cement clinker
Hand protection:
Use gloves with mechanical abrasion resistance according to EN ISO 388 with nitrile, neoprene or polyurethane coating, preferably 3/4 or totally in the case of more severe activities. In the event of possible contact with a wet substance, use a glove with specific chemical protection according to EN ISO 374 with specific thickness and permeation degree (in particular alkali) depending on the type of use (immersion or possible accidental contact).

SECTION 8. Exposure controls/personal protection ... / >>

Respiratory protection:When a person is potentially exposed to dust levels above the exposure limits, use appropriate respiratory protection commensurate with the level of dustiness and compliant with the relevant EN standards (eg facial filtering certified according to EN 149). Masks FFP2, FFP3.

Idrossido di calcio
To control potential exposure, generation of dust should be avoided. In addition, it is recommended to wear a device of adequate protection. Wear the eye protection device (eg. Glasses or mask) unless potential contact with the eyes can be excluded from the nature and type of application (e.g. closed process). In addition, wear a face mask, protective clothing and safety shoes appropriately.
Please refer to the relevant exposure scenario.

8.2.1. Appropriate technical checks
If the operations carried out by the user generate dust, use isolated processes, a room exhaust ventilation or other devices technicians to keep the levels of dust in the air below the recommended exposure limits.

8.2.2. Individual protection measures, such as personal protective equipment

Eye / face protection
Do not use contact lenses. For powders, prefer very close-fitting glasses, with side protections, or of the 'full vision' type. It is advisable have a pocket-sized personal eye drops with you.

Skin protection
Since calcium hydroxide is classified as irritating to the skin, it is necessary to minimize exposure in the best technically possible way. Wear protective gloves (nitrile), standard protective clothing that covers the entire skin surface, long pants, long-sleeved overalls, with closures at the end and footwear resistant to caustic substances and which prevent the penetration of dust.

Respiratory protection
It is recommended to ventilate the room to keep the levels within the established threshold values. We also recommend the use of a suitable filtering mask, according to the expected levels of exposure - please refer to the relevant exposure scenario reported in the Appendix.

Thermal hazards
The substance does not represent any thermal risk, therefore no special precaution is required.

Environmental exposure controls
All ventilation systems must be filtered before discharging them into the atmosphere.
Avoid release to the environment.
Contain the spill. In the event of any copious spills in water courses, alert the Environment Agency or other body responsible for environmental protection.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	powder	
Colour	hazelnut	
Odour	Not available	
Odour threshold	Not available	
pH	12 (sol.acqusa al10%)	
Melting point / freezing point	Not available	
Initial boiling point	Not determined	
Boiling range	Not available	
Flash point	Not applicable	
Evaporation rate	Not determined	
Flammability (solid, gas)	Not available	
Lower inflammability limit	Not available	
Upper inflammability limit	Not available	
Lower explosive limit	Not available	
Upper explosive limit	Not available	
Vapour pressure	Not determined	
Vapour density	Not available	
Relative density	Not available	
Solubility	Not available	
Partition coefficient: n-octanol/water	Not available	
Auto-ignition temperature	Not available	

SECTION 9. Physical and chemical properties ... / >>

Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available
Oxidising properties	Not available

9.2. Other information

Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

Portland cement clinker
White cement, in the presence of water, for example in the production of concrete or mortar, or when it gets wet, produces a strongly alkaline substance.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

Portland cement clinker
As such, cement is stable the longer it is stored appropriately. It must be kept dry. Contact with incompatible materials should be avoided. Wet cement is alkaline and incompatible with acids, ammonium salts, aluminum and other non-noble metals. The cement in contact with the hydrofluoric acid decomposes producing corrosive silicon tetrafluoride gas. The cement reacts with water and forms silicates and calcium hydroxide. The silicates in the cement react with powerful oxidants such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride and oxygen bifluoride.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

Idrossido di calcio
Calcium hydroxide reacts exothermically with acids. When the temperature is above 580 ° C, the calcium hydroxide decomposes, producing calcium oxide (CaO) and water (H2O): Ca (OH) 2 -> CaO + H2O. Calcium oxide reacts with water and generates heat. This can cause risks from flammable materials.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

Portland cement clinker
Moisture conditions during storage can cause lumps and loss of product quality.

10.5. Incompatible materials

Portland cement clinker
Wet white cement is alkaline and incompatible with acids, ammonium salts, aluminum and other non-noble metals. In contact with aluminum powders, wet white cement causes the formation of hydrogen.

Idrossido di calcio
Calcium hydroxide reacts exothermically with acids, forming salts. Calcium hydroxide reacts with aluminum and brass in the presence of moisture, producing hydrogen. Ca (OH) 2 + 2 Al + 6 H2O -> Ca [Al (OH) 4] 2 + 3 H2.

10.6. Hazardous decomposition products

Information not available

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

SECTION 11. Toxicological information ... / >>

11.1. Information on toxicological effects

Idrossido di calcio
Calcium dihydroxide is classified as irritating to the skin and respiratory tract, and carries the risk of serious eye damage. The occupational exposure limit for the prevention of sensory irritation at the local level and the reduction of lung function parameters as critical effects is OEL (8 hours) = 1 mg / m³ of respirable dust.
ABSORPTION
The primary effect of calcium dihydroxide on health is local irritation caused by the change in pH. Therefore, absorption is not a relevant parameter for the purpose of assessing the effects of the substance.
ACUTE TOXICITY
Calcium dihydroxide is not acutely toxic.
Oral LD50> 2000 mg / kg weight (OECD 425, rat)
Dermal LD50> 2500 mg / kg weight (OECD 402, rabbit)
Inhalation No data available
The classification for acute toxicity is not justified.
For irritating effects on the respiratory tract see under.

REPEATED DOSE TOXICITY
The toxicity of calcium through the oral route of exposure is demonstrated by the increase in the maximum tolerable intake levels (UL) for adults determined by the Scientific Committee for Food (SCF), where UL = 2500 mg / day, equal to 36 mg / kg weight / day (individual weighing 70 kg) for calcium. The toxicity of Ca (OH) 2 through contact with the skin is not considered relevant by virtue of the expected insignificant absorption through the skin and due to the fact that local irritation is the primary health effect (change in pH). The toxicity of Ca (OH) 2 by inhalation (local effect, irritation of the mucous membranes), taking into account an average time weighed for a shift of 8 hours, was determined by the Scientific Committee for Occupational Exposure Limits (SCOEL) in 1 mg / m³ of respirable dust. Therefore, the classification of Ca (OH) 2 on the basis of toxicity following prolonged exposure is not necessary.

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

ATE (Inhalation) of the mixture:	Not classified (no significant component)
ATE (Oral) of the mixture:	Not classified (no significant component)
ATE (Dermal) of the mixture:	Not classified (no significant component)

Portland cement clinker

LD50 (Dermal)	2000 mg/kg

Idrossido di calcio

LD50 (Oral)	> 2000 mg/kg Rat, OECD 425
LD50 (Dermal)	> 2500 mg/kg Rabbit, OECD 402

SKIN CORROSION / IRRITATION

Corrosive for the skin
Classification according to the experimental Ph value

Portland cement clinker
Cement in contact with damp skin can cause thickening, cracking and cracking of the skin. Prolonged contact in combination with existing abrasions can cause severe burns. Some individuals may develop eczema following exposure to wet cement dust, caused by the high pH that can induce irritating contact dermatitis after prolonged contact

SECTION 11. Toxicological information ... / >>

Idrossido di calcio
Skin irritation: Calcium dihydroxide is irritating to the skin (in vivo, rabbit).
Respiratory tract irritation: From human data it can be concluded that Ca (OH) 2 is irritating to the respiratory tract.
Based on the experimental results, calcium dihydroxide must be classified as irritating to the skin [skin irritation 2 (H315 - Causes skin irritation)] and strongly irritating to the eyes [eye damage 1 (H318 - Causes serious eye damage)] .
As reported briefly and as recommended by the SCOEL Committee (Anonymous, 2008), based on the data obtained in humans, it is proposed to classify calcium dihydroxide as an irritant for the respiratory tract [STOT SE 3 (H335 - may cause irritation of the respiratory tract)].

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

Portland cement clinker
The clinker caused a set of heterogeneous effects on the cornea and the calculated irritation index was 128.
Direct contact with cement can cause corneal injury due to mechanical stress, immediate or delayed irritation or inflammation. Direct contact with large amounts of dry cement or wet cement projections can cause effects ranging from moderate eye irritation (eg conjunctivitis or blepharitis) to chemical burns and blindness.

Idrossido di calcio
Eye irritation: Calcium dihydroxide carries the risk of serious eye damage (eye irritation studies (in vivo, rabbit)).

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

Idrossido di calcio
There is no data available.
Calcium dihydroxide is not considered a sensitizing substance on the skin, based on the nature of the effects (change in pH) and the importance of calcium for nutrition.
Classification according to awareness is not justified.

Skin sensitization
Portland cement clinker
Some individuals may develop eczema following exposure to wet cement dust, caused by an immunological reaction to soluble Cr (VI) that causes allergic contact dermatitis. The answer may appear in a variety of forms that can range from a mild rash to severe dermatitis. No sensitizing effect is expected if the cement contains a water-soluble reducing agent of Cr (VI) until the indicated period of effectiveness of this reducing agent is exceeded.

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

Idrossido di calcio
Reverse bacterial mutation assay (Ames test, OECD 471): negative
Test of chromosomal aberrations on mammalian cells: negative
Considering that calcium is an omnipresent and essential element and that any variation of the pH induced by lime in aqueous media has no relevance, calcium dihydroxide is obviously devoid of any genotoxic potential.
Classification according to genotoxicity is not justified.

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

Portland cement clinker
No causal association was established between exposure to Portland cement and cancer.
Epidemiological literature does not support the identification of Portland cement as a suspected human carcinogen.
Portland cement is not classifiable as a human carcinogen (according to the ACGIH A4: agents that cause concern about the possibility of being carcinogenic to humans but that cannot be definitively evaluated due to the lack of data. In vitro studies or on animals do not provide indications of carcinogenicity that are sufficient to classify the agent with one of the other notations). Based on available data, it does not fall within the classification criteria.

Idrossido di calcio
Calcium (administered in the form of Ca lactate) is not carcinogenic (experimental result, rat).
The effect on the pH produced by calcium dihydroxide does not give rise to any carcinogenic risk.
Epidemiological data obtained on humans confirm that calcium dihydroxide is devoid of any carcinogenic potential.
Classification according to carcinogenicity is not justified.

SECTION 11. Toxicological information ... / >>

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

Idrossido di calcio
Calcium (administered in the form of Ca carbonate) is not toxic for reproduction (experimental result, mouse).
The effect on pH does not give rise to any reproductive risk.
Epidemiological data obtained in humans confirm that calcium dihydroxide is free of any potential reproductive toxicity.
No effect on toxicity has been identified in both animal and human clinical studies conducted on different calcium salts reproductive and developmental. v. also the Scientific Committee for Food (Anonymous, 2006). Therefore, calcium dihydroxide is not toxic for reproduction and / or development.
Classification according to reproductive toxicity according to Regulation (EC) 1272/2008 is not necessary.

STOT - SINGLE EXPOSURE

May cause respiratory irritation

Portland cement clinker
Cement dust can irritate the throat and respiratory system. Coughing, sneezing and out of breath may occur following exposures above the occupational exposure limits.
Overall, the evidence gathered clearly indicates that occupational exposure to cement dust has produced deficits in respiratory function. However, the evidence currently available is insufficient to establish with certainty the dose-response relationship for these effects.

Idrossido di calcio
It can irritate the respiratory tract

From human data it can be concluded that Ca (OH) 2 is irritating to the respiratory tract. As reported briefly and as recommended by the SCOEL Committee (Anonymous, 2008), on the basis of the data obtained in humans, calcium hydroxide is classified as an irritant for the respiratory tract [STOT SE 3 (H335 - may cause irritation of the ways respiratory)].

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

Portland cement clinker
There is an indication of COPD. The effects are acute and due to high exposures. No chronic effects or low concentration effects were observed. Based on available data, it does not fall within the classification criteria.

Idrossido di calcio
The toxicity of calcium through the oral route of exposure is demonstrated by the increase in the maximum tolerable intake levels (UL) for adults determined by the Scientific Committee on Food (SCF), where UL = 2500 mg / day, equal to 36 mg / kg of weight / day (individual weighing 70 kg) for calcium. The toxicity of Ca (OH) 2 through contact with the skin is not considered relevant by virtue of the expected insignificant absorption through the skin and due to the fact that the local irritation is the primary health effect (change in pH). The toxicity of Ca (OH) 2 by inhalation (local effect, irritation of the mucous membranes) taking into account an average time weighted for an 8-hour shift (8-h TWA), was determined by the Scientific Committee on Occupational Exposure Limits (SCOEL) in 1 mg / m3 of respirable dust (see Section 8.1).

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

Portland cement clinker
Cement is not dangerous for the environment. Ecotoxicity tests with Portland cement on Daphnia magna and Selenastrum coli have shown a small toxicological impact. So the LC50 and EC50 values cannot be determined. There are no indications of toxicity in the sedimentary phase. The addition of large amounts of cement to water can, however, cause an increase in pH and can therefore be toxic to aquatic life in certain circumstances.

SECTION 12. Ecological information ... / >>

Idrossido di calcio
12.1.1. Acute / prolonged toxicity to fish
LC50 (96h) on freshwater fish: 50.6 mg / l
LC50 (96h) on sea fish: 457 mg / l

12.1.2. Acute / prolonged toxicity to aquatic invertebrates
EC50 (48h) on freshwater invertebrates: 49.1 mg / l
LC50 (96h) on sea invertebrates: 158 mg / l

12.1.3. Acute / prolonged toxicity on aquatic plants
EC50 (72h) on freshwater algae: 184.57 mg / l
NOEC (72h) on freshwater algae: 48 mg / l

12.1.4. Toxicity to microorganisms e.g. bacteria
At high concentration, through raising the temperature and pH, calcium hydroxide is used for the disinfection of wastewater sludge.

12.1.5. Chronic toxicity to aquatic organisms
NOEC (14 days) for sea invertebrates: 32 mg / l

12.1.6. Toxicity to soil organisms
EC10 / LC10 or NOEC on soil macroorganisms: 2000 mg / kg soil dw
EC10 / LC10 or NOEC on soil microorganisms: 12000 mg / kg soil dw

12.1.7. Toxicity on terrestrial plants
NOEC (21 days) on land plants: 1080 mg / kg

12.1.8. General effect
Acute effect on pH. Although this substance is useful for correcting the acidity of the water, an excess over 1 g / l can be harmful to aquatic organisms. A pH value> 12 will decrease rapidly following dilution and carbonation.

Idrossido di calcio

LC50 - for Fish	50,6 mg/l/96h
EC50 - for Crustacea	49,1 mg/l/48h
EC50 - for Algae / Aquatic Plants	184,57 mg/l/72h
Chronic NOEC for Crustacea	32 mg/l
Chronic NOEC for Algae / Aquatic Plants	48 mg/l

12.2. Persistence and degradability

Information not available

12.3. Bioaccumulative potential

Information not available

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

12.6. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

SECTION 13. Disposal considerations ... / >>

CONTAMINATED PACKAGING Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

Portland cement clinker
Product - unused residue or dry spill

CER: 10 13 06 (Powders and particulates)
Collect unused dry residues or dry spills as they are. Mark the containers. If necessary, re-use based on storage life considerations and the obligation to avoid exposure to dust. In case of disposal, harden with water and dispose of according to "Product - after addition of water, hardened".

Product - sludge

Allow to harden, avoid entry into sewage and drainage systems or into water bodies (for example water courses) and dispose of as described below in "Product - after addition of water, hardened".

Product - after adding water, hardened

Dispose of according to Legislative Decree 152/2006 and subsequent amendments. Avoid entry into the sewage system. Dispose of the hardened product as concrete waste. Due to inertization, solid waste is not dangerous.

CER: 10 13 14 (waste and cement sludge) or 17 01 01 (cement).

Packaging

Empty the packaging completely and manage it in accordance with Legislative Decree 152/2006 and subsequent amendments.

SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EC: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product

Point 3

Contained substance

Point 75 Calcium Carbonate
Reg. no.: Esentato ai sensi dell'allegato V.7

Regulation (EC) No. 2019/1148 - on the marketing and use of explosives precursors
Not applicable

Substances in Candidate List (Art. 59 REACH)
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)
None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has been performed for the following contained substances
Idrossido di calcio

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Skin Corr. 1	Skin corrosion, category 1
Eye Dam. 1	Serious eye damage, category 1
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Skin Sens. 1B	Skin sensitization, category 1B
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation

SECTION 16. Other information ... / >>

- IC50: Immobilization Concentration 50% - IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
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11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
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16. Regulation (EU) 2019/521 (XII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Regulation (EU) 2020/217 (XIV Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION
Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.
Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.
Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.